

TWO ADDITIONS TO THE FUNGI OF NEW SOUTH WALES.

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1. PUCCINIA HIERACII, Mart.

Hawkweed Puccinia.

On both surfaces of leaves of *Hypochaeris radicata*, L. October. Wagga Wagga, N.S.W. (Maiden). Not hitherto recorded for New South Wales.

2. CAPNODIUM CALLITRIS, McAlp., n.sp.

Murray Pine Capnodium.

(Plate LVI.)

Black, widely effused, not readily separating and then in small particles, giving a sooty appearance to the dark green branches. *Hyphæ* dark brown, creeping, interwoven, branched, septate, moniliform or joints cuboid, up to $14\ \mu$ broad; branches rigid, short, usually simple, tapering to about $4\ \mu$. Slender, colourless and pale green filaments also present; often in moniliform chains. *Gonidia* on both brown and colourless filaments: on brown, usually uniseptate and oblong, dark yellow to dark brown, very variable in size, $13\text{-}28 \times 7\text{-}13\ \mu$; on colourless, elliptical, uniseptate, about $11 \times 5\frac{1}{2}\ \mu$. *Gemmae* or detached bud-like bodies frequent. *Spermogonia* elongated-fusiform or somewhat hemispherical, very dark brown, greenish at apex, variable in size and shape, $84\text{-}130 \times 50\text{-}66\ \mu$. *Spermatia* hyaline, rod-like, imbedded in gelatinous material, $4\text{-}4\frac{1}{2} \times 1\ \mu$. *Pyrenidia* roughly bottle- or flask-shaped, with bulging part often one-sided, dark brown, with

colourless fringe at mouth. *Pycnospores* at first colourless, then greenish, and finally yellowish-brown, end cells often colourless, ellipsoid, 5-septate and septa stout, $22-24 \times 9-11 \mu$. *Perithecia* simple, dark coloured but dark green when crushed, and walls irregularly netted, with more or less globular or oval head, often supported by stout body, papillate at apex when ripe and extruding plug of dirty yellow material, $170-280 \times 90-156 \mu$ or even larger. *Asci* fusoid-clavate, sessile, apex rounded, 8-spored ($79 \times 26 \mu$). Sporidia at first colourless, then pale green, finally dark brown, oblong, constricted at the middle, 3-septate, and usually longitudinally divided, often in each division, $17-19 \times 8-9\frac{1}{2} \mu$.

The various reproductive bodies are intermixed. Pale green glomeruli (*Heterobotrys*) are also present.

On *Callitris robusta*, R.Br. October. Wagga Wagga, N.S. Wales. (Maiden).

Besides the gonidia, detached portions of the hypha probably serve as such, and there are many-celled swollen bodies, between the ordinary cells, which likely have the same function. The spermogonia vary considerably in shape, but the rod-like spermatia are very characteristic. The pycnidia are easily recognised by their long and usually straight neck, composed of elongated twisted filaments and reaching a length of 190μ , apart from the body. The fringed mouth is in contrast to that of the perithecium which is papillate and splits irregularly. The pycnospores are at first unicellular and colourless, borne at the end of colourless, jointed filaments. They soon develop two or three septa and become greenish, then finally turn brown on maturity, with 5 septa constantly. It is interesting to observe that the same changes of colour are seen in the sporidia. There is a species of *Capnodium* (*C. australe*, Mont.) found in Australia on Conifers, but it differs from this one in several important respects. The perithecia are dichotomous, but here they are simple; the sporidia are 4-5-septate and not constricted, but here they are 3-septate and constricted.

EXPLANATION OF FIGURES.

Capnodium callitris.

- Fig. 1.—Hyphæ branched and unbranched ($\times 540$).
Fig. 2.—Colourless moniliform hypha bearing gonidium ($\times 1000$).
Fig. 3.—Uniseptate gonidia borne by coloured hyphæ ($\times 1000$).
Fig. 4.—Detached brown body germinating and giving rise to colourless tube ($\times 1000$).
Fig. 5.—Spermogonium with spermatia ($\times 540$).
Fig. 6.—Spermatia ($\times 1000$).
Fig. 7.—Pycnidium with colourless fringe at mouth-opening ($\times 145$).
Fig. 8.—Pycnospores ($\times 1000$).
Fig. 9.—Pycnospores germinating usually laterally, sometimes at end ($\times 1000$).
Fig. 10.—Perithecium ($\times 270$).
Fig. 11.—Ascus with 8 sporidia ($\times 1000$).